

**John Cash, Ur-Energy Inc. (comments about the Class III permit)**

1. Part I Section B, pg. 2. The first paragraph references 40 CFR §147.2100 which pertains to Class II wells in South Dakota. It appears the reference should be to §147.2101 which discusses EPA's authority with respect to Class III wells.
2. Part II, Section A, pg. 6. Requires wellfields to be at least 1,600 feet from the Permit Area boundary (0.3 miles). The determination of this distance seems arbitrary and is overly restrictive while providing little or no benefit. We believe this distance sets an unreasonable precedent that will likely prevent the complete recovery of mineral resources at future mines. A science based approach to determine this distance is in order. We suggest the EPA work with the proponent to determine an appropriate minimum distance between the wellfields and the permit boundary that is protective of surrounding USDWs (with sound technical justification consistent with requirements of the NRC and other states) while at the same time allowing for recovery of the majority of the resource.
3. Part II Section E(2)(b)(i)(A), PG. 13. Requires the use of Low-Stress (Low Flow) purge/sampling methods. We believe this is too prescriptive for a Class III permit; especially since there are other EPA approved methods for purging of wells which may be more appropriate based on the circumstances. Did EPA consider that some wells may be too deep to be sampled utilizing this technique (this type of pump relies on air pressure to push the water to the surface and there are practical limitations on air compressors as wells as this type of pump)? We suggest replacing this language with a statement that requires the Permittee to sample wells using any appropriate EPA approved method. Further to this discussion, section (C) requires purging three to six casing volumes if stabilization doesn't occur prior to sampling. If a Low-Stress (Low Flow) pump is used to purge three to six casing volumes, it could take an inordinate amount of time to sample a well. For example, a common low flow pump advertised on-line has a maximum pump rate of 100 ml/min. If a monitor well has 230 gallons per casing volume it would take over 400 hours to purge three casing volumes utilizing the low flow pump.
4. Part II Section E, Table 8, pg. 14. This table lists a total of 45 parameters, several of which are not typically found in this geologic setting or are typically not found at levels of concern. We urge the EPA to remove the following parameters from Table 8 or require only one round of analysis to demonstrate the ions aren't present in baseline conditions (Aluminum, Antimony, Beryllium, Boron, Fluoride, Mercury, Nickel, Silver, Strontium, Thallium and Thorium). We suggest the EPA review the list of parameters that NRC requires in Table 2.7.3-1 of NUREG 1569 (also see language immediately above Table 2.7.3-1 that discusses the selection of parameters). Table 8 in the draft permit should more clearly specify if the analysis is to be performed for particulates or dissolved fraction. Finally, the EPA should clarify that gross alpha excludes both radon and uranium in accordance with drinking water MCLs.
5. Part II Section G. It appears the EPA is attempting to establish an experimental method to demonstrate downgradient waters won't be negatively impacted by residual contamination. However, the core testing described in this section is fraught with technical problems that will likely render the results meaningless. For example, it is not reasonable to draw conclusions based on testing a relatively finite sample for a finite period of time. Instead of attempting to develop an experimental method with no previous field verification, we recommend this entire section be deleted. In its place, EPA should rely on geochemical modeling, perhaps based in part on data collected from core samples, to ensure that any residual contamination of concern, if it exists, will not harm downgradient USDWs. We recommend that the EPA consider the NRC's and state's approaches to this matter since they have many decades of experience successfully regulating in situ mines.
6. Part IV. We are concerned that the EPA is attempting to develop a down-gradient monitoring scheme that is inconsistent with requirements currently implemented by any state program or by the NRC. We wonder why the EPA feels the need to implement such onerous standards when we know of no evidence that such drastic measures are warranted; even though commercial in situ mining has been utilized in the U.S. since the mid 1960's. We strongly encourage EPA to delete this entire section and consult with the various states who have primacy as well as the NRC to determine a course of action that is commensurate with the hazard. Implementation of this section will, in our educated opinion, significantly harm the economics of in-situ mining in the state of South Dakota.

7. Part V, Section E(4), pg. 33 requires 120% of the calculated volume be used. This statement isn't clear since I assume the EPA isn't requiring the cement be forced with pressure into the open hole. We assume the statement means the permittee must prepare at least 120% of the calculated volume. This practice will result in the waste/disposal of cement. We encourage the EPA to allow the permittee to prepare 100% of the calculated volume. Any remaining void should be top filled after the cement has cured.
8. Part VII, Section C(4)(d) states the permittee may use air to induce pressure during an MIT. Instead of using "air" we suggest the permittee be allowed to use "compressed gas" which could include air.

Part VIII, Section F(4)(b)(i), page 44, requires the water level at the perimeter monitor wells be consistently lower than baseline levels to demonstrate hydraulic control. While it is possible to generally maintain the water level at these measurement points lower than baseline, it will be impossible to keep the water levels below baseline values "consistently." For example, if a single downhole pump breaks down, a resulting pressure wave will quickly migrate out to the monitor well ring and could cause the local water level to temporarily exceed baseline. A temporary pressure wave like this does not indicate that hydraulic control has been lost. However, extended time periods with elevated water levels is an indication that hydraulic control has been lost or may be lost. We recommend the wording be changed to either require a specified percent bleed rate (typically 0.5 to 1%) or allow the permittee a specified time to bring the water level below the baseline level (on the order of one week).

### **Brian Walsh, South Dakota DENR (both permits and AE ROD, as described below)**

#### Comments on the Draft Class III Area Permit

9. Page 40, Part VII, Section C - DENR recommends EPA have an inspector on-site to witness the initial and ongoing mechanical integrity testing of the Class III Area Permit wells.
10. Page 40, Part VII, Section C.3 - South Dakota's Underground Injection Control Class II rule ARSD 74:12:07:18 requires a minimum 15 minute time period for pressure fall-off and wellhead pressure tests. Based on the rule and to ensure testing procedures are consistent with existing Class II wells in the vicinity of the proposed project, DENR recommends EPA require the internal mechanical integrity tests to run for a minimum of 15 minutes rather than the 10 minutes proposed in the draft permit.
11. Page 45, Section H - DENR recommends EPA add a fifth sub-section to this section stating the permittee is prohibited from injecting fluids received from facilities or operations other than those associated with the Dewey-Burdock Uranium In-Situ Recovery Project.
12. Page 72, Section D.11.i - Revise this section to include the following contact information for reporting oil and chemical releases to DENR. DENR Ground Water Quality Program, Spills Section, (605) 773-3296 or after hours at (605) 773-3231.

#### Comments on the Draft Class V Area Permit

3. Page 4, Section A.1.d - DENR recommends EPA evaluate the total dissolved solids (TDS) concentration on a well-by-well basis due to the variability of TDS concentrations in the area and to be consistent with the existing aquifer exemption process for the Class II disposal wells in the vicinity of the proposed project.
4. Page 27, Section D - DENR recommends EPA have an inspector on-site to witness the initial and ongoing mechanical integrity testing of the Class V Area Permit wells.
5. Page 27, Section E - DENR concurs with the permit limitation described in Section E - Class V disposal should only be authorized in non-USDWs (Underground Source of Drinking Water with TDS greater than 10,000 mg/L).
6. Page 28, Section K - DENR recommends EPA add a third sub-section to this section stating the permittee is prohibited from injecting waste fluids received from facilities other than from operations associated with the Dewey-Burdock Uranium In Situ Recovery Project.
7. Page 38, Section A- This section states EPA will not approve the plugging and abandonment (PA) of any Class V well until all Class III wellfields have been decommissioned by the Nuclear Regulatory Commission (NRC). DENR

recommends EPA revise this section to include the authority to authorize the immediate PA of a Class V well in the event a well loses mechanical integrity or otherwise fails and threatens a USDW.

8. Page 44, Section D.11.i - Revise this section to include the following contact information for reporting oil and chemical releases to DENR. DENR Ground Water Quality Program, Spills Section, (605) 773-3296 or after hours at (605) 773-3231.

Comments on the Aquifer Exemption Draft Record of Decision

13. Page 9, Option 2 - DENR recommends EPA select Option 2, plugging and abandonment of well 16. This is DENR's preferred option because it eliminates the possibility of well 16 being used as a drinking water well in the future.

14. Page 12, Flow Rates Used in the Capture Zone Equation - In the first paragraph of this section replace "South Dakota State Engineer's Office" with "South Dakota Department of Environment and Natural Resources".

15. Page 14, Flow Rates Used in the Capture Zone Equation - in the third paragraph on this page replace "State Engineer" with "South Dakota Department of Environment and Natural Resources".

16. Page 18 - 19, Demonstration that the Injection Zone Fluids Will Remain within the Exempted Portion - DENR recommends EPA include a bullet describing the Class III Area Permit mechanical integrity requirements as an additional factor supporting EPA's conclusion that adjacent USDWs will not be impacted.